

HASSAYAMPA RIVER AT BOX CANYON

FCD GAGE ID# 5308

STATION DESCRIPTION

LOCATION - The gage is located on the right bank of the Hassayampa River in the box canyon area of the river, northwest of Wickenburg. Latitude N34° 02' 42.2", Longitude W112° 42' 36.3". Located in the SW1/4 SE1/4 S07 T8N R4W in the Sam Powell Peak 7.5-minute quadrangle.

ESTABLISHMENT - The gage was installed by the Flood Control District on November 17, 1983 in the abandoned USGS gage stilling well. The USGS had operated a continuous gage at this site from 1946 to 1982.

DRAINAGE AREA - 417 mi²

GAGE - The gage is a pressure transducer type instrument located in the stilling well on the right bank of the river. The PT diaphragm is at gage height 3.15 feet or 2,239.28 feet NGVD 1929.

One staff gage is at the site. The staff gage reads in gage height and is located inside the stilling well.

There are two crest gages at this location.

Crest gage #1 is the lower gage. It has pin elevation of 3.12 feet gage height, levels of July 19, 2000.

Crest gage #2 is the upper gage. It is at elevation 13.04 feet gage height, levels of July 19, 2000.

ZERO GAGE HEIGHT - Zero gage height is defined as staff gage datum, is equal to 2,236.13 feet NGVD 1929, and is equivalent to 91.61 feet in survey datum.

HISTORY - The USGS collected annual peaks from this site in Water Years 1925, 1927, 1937, and 1938. The USGS operated a continuous station at this site from May 1946 to September 1982. The Flood Control District established a gage at this site in November 1983. The channel changes significantly during major events. Prior to the September 1997 flood, the channel was best characterized as a sand channel. Following the September 1997 event, the channel was mainly cobbles. Following events during the summer 1999, the channel has returned to a sand channel.

REFERENCE MARKS –

RM-HASSBOX - is an FCD brass cap high on top of the right bank. It is not tied into gage datum.

RM1 - Top bolt on concrete, upstream side of gage. Elevation = 8.39 feet gage height, or 100.00 feet survey datum.

RM2 - Bottom bolt on concrete, upstream side of gage. Elevation 5.57 feet gage height, or 97.18 feet survey datum, levels of December 2, 1999.

RM3 (old USGS RM-1) is a Coast and Geodetic Survey brass tablet located on a shelf on the left bank approximately 140 feet upstream of the gage cross section. Elevation 6.02 feet gage height, 2,242.15 feet NGVD 1929, or 97.63 feet survey datum, levels of May 26, 2005. Monument was removed by vandals. The monument will be replaced as soon as possible.

There are nine permanent cross section markers located at and below the gage. Elevations are in survey datum, based on RM-1 = 100.00 feet.

RP_XS1 - this cross section is at the RM's and is perpendicular to flow.

RP_XS2 - This cross section is located approximately 110 feet downstream from XS1. Elevation of top of nail is 100.18 feet.

RP_XS3 - This cross section is located approximately 110 feet downstream from XS2. Elevation of top of nail is 107.25 feet.

RP_XS4 - This cross section is located approximately 110 feet downstream from XS3. Elevation of top of nail is 101.62 feet.

RP_XS5 - This cross section is located approximately 130 feet downstream from XS4. Elevation of top of nail is 98.87 feet.

RP_XS6 - This cross section is located approximately 140 feet downstream from XS5. Elevation of top of nail is 99.08 feet.

RP_XS7 - This cross section is located approximately 110 feet downstream from XS6. Elevation of top of nail is 103.66 feet. Watch for the beehive.

RP_XS8 - This cross section is located approximately 100 feet downstream from XS7. Elevation of top of nail is 96.41 feet.

RP_XS9 - This cross section is located approximately 110 feet downstream from XS8. Elevation of top of nail is 97.16 feet.

CHANNEL AND CONTROL – The channel is straight up and downstream of the gage several hundred feet. The right bank is essentially vertical with very little terraced overbanks. The left bank has a small terrace overbanks before the bank becomes vertical rock. Currently, the channel bed is mainly a sand channel. However, during the last large flow in 1997, the channel was mostly cobble.

The control for low flows are distributed among many small rivulets within the main channel. Flows above about 200 cfs will begin to converge into a single flow.

RATING – The current rating is Rating #9 applied for Water Year 2005. The rating was developed from a plot of the indirect discharge measurements collected in the past 10 years.

DISCHARGE MEASUREMENTS - Low flows can be measured directly by wading. Higher flows can be measured using indirect methods.

POINT OF ZERO FLOW - The PZF is 2.13 feet gage height as of May 26, 2005. Historically, the PZF has changed many times but has tended to remain within a narrow one-foot band between 2 and 3 feet gage height. Only in 1998 and 1999 did the low point in the channel fall below 2 feet gage height.

FLOODS – A verified flood of 26,000 cfs and 18.9 feet gage height, occurred on January 21, 2010. A verified flood of 19,000 cfs at 16.15 feet gage height occurred on February 12, 2005. A discharge of 3,800 cfs verified by slope - area occurred on September 26, 1997. The peak discharge of record was recorded by the USGS of 54,000 cfs at 34.6 feet gage height from a slope - area upstream of the gage, September 5, 1970.

REGULATION - Hassayampa Lake regulates approximately 2 square miles of the uppermost part of the watershed.

DIVERSIONS - Several small diversions for irrigation near Wagoner.

ACCURACY - Fair, subject to large changes in bed conditions.

JUSTIFICATION - Monitor flows in the Hassayampa above Wickenburg and Martinez Creek for flood warning to the town of Wickenburg.

UPDATE - July 19, 2011
 D E Gardner